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Published in:
Santé mentale au Québec

DOI:
10.7202/1070246ar

Publication date:
2020

Document Version
Peer reviewed version

Decline of Empathy after the First Internship: Towards a More Functional Empathy?

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RÉSUMÉ La recherche a identifié un déclin d'empathie à mesure que les études en médecine progressent. Parmi les différentes hypothèses, une explication souvent évoquée est le premier contact avec les stages. Cette étude quasi expérimentale a été conçue pour examiner l'impact du premier stage chez les étudiants en médecine. Notre question de recherche était : « dans quelle mesure le premier stage peut diminuer les scores d'empathie de nos étudiants en médecine de 3e année » ? Nous avons mesuré l'empathie de 220 étudiants de 3e année en médecine avant et après leur premier stage (de 3 semaines) en médecine générale. En utilisant la méthodologie des enquêtes en ligne, nous avons recueilli des données sociodémographiques, d'empathie (*Interpersonal Reactivity Index* [IRI]) et de souhait de choix de carrière. Les analyses statistiques ont révélé une diminution légère, mais significative des sous-échelles « fantaisie », « intérêt empathique » et « détresse personnelle » de l'IRI. Ces résultats suggèrent un impact potentiel du premier stage sur les compétences empathiques. Le fait que le score des étudiants à la sous-échelle « détresse personnelle » (qui caractérise une difficulté à gérer les émotions) diminue est en réalité plutôt une bonne chose. Ces données soulèvent donc la question de la « fonction » de cette perte d'empathie. Le fait que ce score diminue après le premier stage pourrait indiquer un changement positif pour ces étudiants en médecine : vers une meilleure régulation émotionnelle et une empathie affective plus fonctionnelle.

Mots clés : empathie, étudiants en médecine, stage, médecine générale, déshumanisation

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ABSTRACT Research has shown a decline in empathy as medical studies progress. Among various hypotheses, an explanation track evoked is the first contact with the internship.

Objectives This quasi-experimental study was designed to examine the impact of the first internship in medical students. Our research question was: "to what extent the first internship may decreased the empathy's scores of our 3d year medical students".

Methods We measured the empathy of 220 third year medical students before and after their first internship (3 weeks) in family medicine. Using online surveys methodology, we collected data about empathy ("Interpersonal Reactivity Index": IRI), epidemiology, professional orientation choices.

Results Statistical analyses revealed a small but significant decrease in IRI's "fantasy," "empathic concern" and "personal distress" subscales.

Conclusion These results suggest a potential impact of the first internship on empathic skills. The fact that the students' score for the "personal distress" subscale (which characterizes a difficulty in managing their emotions) decreases is actually a rather good thing. These data raise the question of the "function" of this loss of empathy. The fact that this score decreases after first internship, may indicate a positive change for these medical students: towards better emotional regulation and more functional affective empathy.

Keywords: empathy, medical students, internship, family medicine, dehumanization

Introduction

Generally, empathy is difficult to define and not all authors agree on its different components. In the context of patient care and medical education, one accepted definition is "a cognitive attribute that involves an understanding of the patient's experiences, concerns and perspectives, combined with a capacity to communicate this understanding" (Hojat *et al.*, 2002). Cognitive empathy is often distinguished from affective empathy (Batson, 2009) (some authors also add a behavioural and/or a moral component to empathy [Morse *et al.*, 1992]). Cognitive empathy is defined as the understanding of the emotional state of others. And affective empathy as the sharing of the emotional state of others (Basic Empathy Scale, BES [Jolliffe & Farrington, 2006]). The cognitive dimension seems more receptive to a training program, while the affective component would be more innate (Hojat, 2007). Although this distinction is relevant, it seems that these two psychologically and theoretically affective and cognitive components of empathy are intimately linked and interdependent in the reality of the empathic phenomenon (Decety & Lamm, 2009; Preusche & Lamm, 2016).

Anyhow, all authors agree to say that empathy is important. In addition to improving the quality of the doctor-patient relationship (Matthews, Suchman, & Branch, 1993), physician empathy is a critical factor, associated with multiple beneficial outcomes for the patient (Derksen, Bensing, & Lagro-Janssen, 2013; Hojat *et al.*, 2011; Kim, Kaplowitz, & Johnston, 2004; Rakel *et al.*, 2011), the physicians themselves (Brazeau, Schroeder, Rovi, & Boyd, 2010; Halpern, 2003; Neumann *et al.*, 2011; Thomas, Dyrbye, Huntington, Lawson, Novotny, Sloan, *et al.*, 2007) and for health care system (Epstein *et al.*, 2005).

However, research has shown a decline in empathy as medical studies progress (Hojat *et al.*, 2004; Neumann *et al.*, 2011; Spencer, 2004). Scientific literature informs us that this deterioration of doctors' communication skills over time is due in particular to the emotional and physical brutality of medical training; especially during internships and assistantships (Ha & Longnecker, 2010). It causes a decrease in empathy, this could be illustrated, for example, by mocking the patients (DiMatteo, 1998). The steepest decrease seems to occur between medical student's second and third years as they begin their clinical training (Chen, Lew, Hershman, & Orlander, 2007; Hojat *et al.*, 2009). It seems ironic that this change happens at a time when patient-care activities appears (Hojat *et al.*, 2009). Activities that require precisely the development of relational skills such as empathy. Based on longitudinal studies, authors have indicated that this decline was stronger among students with low self-reported empathy baseline—at the beginning of their studies—(Chen, Kirshenbaum, Yan, Kirshenbaum, & Aseltine, 2012). Nevertheless, the reliability of this decline is unclear (Costa, Magalhaes, & Costa, 2013; Ferreira-Valente *et al.*, 2017). Recent reviews have called into question this decline (Colliver, Conlee, Verhulst, & Dorse, 2010; Ferreira-Valente *et al.*, 2017). It seems that it does not concern all components of empathy *(Stansfield et al.*, 2016). Indeed, some authors have identified an increase in the behavioural component of empathy (Handford, Lemon, Grimm, & Vollmer-Conna, 2013).

As explained above, among various hypotheses (time pressure, lack of role models, patient and environmental factors, competitiveness, increasing workload [Hojat et al., 2009; Kelm, Womer, Walter, & Feudtner, 2014; M. Neumann *et al.*, 2011]), an explanation track evoked is the first contact with the internship (Hojat *et al.*, 2009). This study was designed longitudinally to examine the impact of the first internship in medical students. Our research question was: "to what extent the first internship may

decreased the empathy's scores of our 3d year medical students". Did some subscale scores of the IRI decrease after the 3 weeks internship in our students?

Methods

Procedure

At the end of their third year of study (in Belgium, the basic university curriculum in medicine—before any specialization—is made of 6 years), all students enrolled at the University of Namur in Belgium must complete a 3 weeks internship in outpatient primary care setting. They accompany their tutor throughout his/her consultations, they observe and, according to the invitation of the tutor, some of them already take part more actively in the consultation (realization of anamnesis or basic technical acts as a blood test, blood pressure, etc.).

A self-questionnaire was proposed, on a voluntary and unpaid basis, to these medical students (N=254). They were asked to fill it before and after completing their internship. Students were recruited by local advertisements. The link to the questionnaire was open access on the "virtual laboratory" (website of the psychology department offering different surveys to students). The data were collected from June to July 2017. Before completing the questionnaire, students were asked to read and accept the informed-consent form to participate freely in this study. This study was approved by the local Ethics Committee of "Cliniques Universitaires UCL Mont-Godinne" and conducted in accordance with the Declaration of Helsinki.

Participants

The final sample consists of 220 students (78 men and 142 women). We thus have a participation rate of 86.61%. The average age of the responding students is 21.9 years (SD =2.22). In order to measure whether the first internship modified the empathy

scores of our students, we implemented a longitudinal study. Since the internship is mandatory for all students, one characteristic of our sample is that they all participated in the "internship". As this is a within subject design, the subjects were considered as their own controls. However, the effect of time as well as other factors that could have occurred during these 3 weeks and impact the empathy of our students cannot be discarded. This is why we will be particularly cautious when analysing the results of our quasi-experimental study.

Instruments

Using online survey methodology, we collected data about empathy ("Interpersonal Reactivity Index": IRI), demographic information and professional orientation choices. In this article, we will focus solely on the impact of the internship on the dimensions of empathy and not on career choices.

As said above, participants had to complete the IRI (Interpersonal Reactivity Index), created by Davis (Davis, 1983), to measure empathy via a multidimensional approach. According to some authors, this is one of the most used psychometric tools to measure the level of empathy (Jordan, Amir, & Bloom, 2016). More precisely, participants have completed their French version (F-IRI (Gilet, Mella, Studer, Grühn, & Labouvie-Vief, 2013)). This is a self-reported measure of 28 items, with 5-point Likert scale (ranging from 1: complete disagreement to 5: complete agreement). This questionnaire includes 4 subscales (each measured by 7 items), their validity has been proven (Davis, 1983). Empirical support for the four-factor structure of the IRI has been found (Davis, 1983). The convergent and discriminant validity of the subscales have been supported by examining pro-social behaviours (Sze, Gyurak, Goodkind, & Levenson, 2012), alexithymia (Grynberg, Luminet, Corneille, Grèzes, & Berthoz, 2010) and aggressive behaviours (Mayberry & Espelage, 2007). These subscales measure two cognitive

components of empathy: perspective-taking (PT), fantasy (F) and two emotional components: empathic concern (EC) and the personal distress (PD) (T. A. Quince, P. Thiemann, J. Benson, & S. Hyde, 2016). To properly interpret the results that follow, it seems necessary to present the definition of these different subscales. Fantasy (F) is defined as the tendency to project oneself mentally into feelings and actions of fictional perceptions ("I daydream and fantasize, with some regularity, about things that might happen to me"). Then, empathic concern (EC) includes altruistic feelings of sympathy and concern for those in distress ("I often have tender, concerned feelings for people less fortunate than me"). Personal distress (PD) distinguishes ego-centered feelings of anxiety and discomfort from strained interpersonal situations ("In emergency situations, I feel apprehensive and ill at ease"). Finally, perspective-taking (PT) is the tendency to spontaneously adopt the psychological point of view of others (Davis, 1980) ("I try to look at everybody's side of a disagreement before I make a decision") (T. A. Quince *et al.*, 2016). The test has been used in medical research and has shown good validity and test-retest reliability coefficients (Neumann *et al.*, 2011; Quince, Thiemann, Benson, & Hyde, 2016).

Data analysis

The data were analysed using Statistical Package for the Social Sciences (SPSS), version 24 of IBM.

Results

The Cronbach Alpha reliability obtained for the four subscales were all above .70 and thus considered as acceptable (Bland & Altman, 1997; Tavakol & Dennick, 2011), ranging from .742 to .790 for the first assessment and from .765 to .844 for the second assessment.

We ran an Independent-Sample T Test for each subscale at time 1, with gender as grouping variable (see Table 1, for mean and standard deviation scores of women and men of subscales of the IRI). At time 1, women obtained significantly higher scores (M = 29.08; SD = 3.4) than men (M = 26.22; SD = 4.2) for the "empathic concern": t= -5.47, p <.0001. Women also obtained significantly higher scores (M = 19.77; SD = 4.4) than men (M = 17.50; SD = 4.3) for "personal distress": t = -3.67, p <.0001. Finally, they also obtained significantly higher scores (M = 26.28; SD = 4.9) than men (M = 24.71; SD = 5.6) for "fantasy" subscales: t = -2.18, p = .03 of the IRI.

Table 1—Mean and standard deviations of women and men of subscales of the IRI at time 1.

Paired samples t Tests comparing scores on the different IRI subscales between time 1 and time 2 were performed. Regarding the "fantasy" subscale first, the average score decreases significantly between time 1 (M = 25.72; SD = 5.2) and time 2 (M = 25.03; SD = 5.8): t = 2.77, p = .006. Regarding the "empathic concern" subscale, the average score decreases significantly between time 1 (M = 28.06; SD = 3.9) and time 2 (M = 27.40; SD = 4.5): t = 2.91, p = .004. Finally, for the "personal distress" subscale, the average score decreases significantly between time 1 (M = 18.97; SD = 4.5) and time 2 (M = 18.42; SD = 4.5): t = 2.27, p = .023.

Table 2—Mean and standard deviation of students of subscales of the IRI at times 1 and 2.

To summarize, statistical analyses revealed a significant difference in mean scores in 3d year students between before and after their internship: a small but significant decrease of IRI's subscales: "fantasy", "empathic concern" and "personal distress" after traineeship.

Conclusion

In our sample, women present higher scores of empathy baseline of 3 IRI's subscales: fantasy, personal distress and empathic concern. This result is congruent with the literature (Baron-Cohen, 2011; Chen *et al.*, 2012; Quince *et al.*, 2016). Some authors have identified (cultural) norms called "display rules" that govern emotional expression and that differ by gender (Ekman, 1984; Matsumoto, 1990; Youssef, Nunes, Sa, & Williams, 2014). In practice, it seems that women express more empathy towards their patients than their male counterparts (Chen *et al.*, 2012; Esquerda, Yuguero, Viñas, & Pifarré, 2016). In addition, these cultural norms could also influence patient responses to questionnaires, raising the issue of possible cultural biases when measuring empathy (Preusche & Lamm, 2016).

Next, the comparison between the results obtained at IRI before and after the internship suggests a potential impact of the first internship on empathic skills. Indeed, we observe a small but significant decline in scores for three IRI's subscales: fantasy, personal distress and empathic concern. At the clinical level, it is difficult to know if this slight decrease can be transformed into a change in behaviour since, as will be discussed below, the decline observed via self-reported empathy scores does not always translate into less empathic behaviour (Teng *et al.*, 2017). In a recent meta-analysis, authors identified that a majority of the studies measuring empathy using IRI reported an increase (Handford *et al.*, 2013; Toto, Man, Blatt, Simmens, & Greenberg, 2015) or a non-significant variation (Bratek, Bulska, Bonk, Seweryn, & Krysta, 2015; Quince, Parker, Wood, & Benson, 2011) in empathy scores measured in medical students (Ferreira-Valente *et al.*, 2017). Conversely, in their review, 4 of 14 studies using the Jefferson Scale of Physician Empathy- Student version (JSPE-S) reported a decline in empathy (Hojat *et al.*, 2009; Lim *et al.*, 2013; Nunes, Williams, Sa, & Stevenson, 2011;

Youssef *et al.*, 2014), the others showing non-significant, mixed results and 3 of them an increase in the empathy score. It seems that the design used (longitudinal vs cross-sectional) produces different results. The main trend in cross-sectional studies is the presence of higher empathy scores in later years (Ferreira-Valente *et al.*, 2017). In longitudinal studies, mixed results are mainly observed (Chen *et al.*, 2012; Costa *et al.*, 2013; Loureiro, Goncalves-Pereira, Trancas, Caldas-de-Almeida, & Castro-Caldas, 2011).

Some limitations on the use of a self-reported questionnaire (IRI) to measure empathy can be raised. Indeed, we may wonder to what extent it is appropriate to evaluate via a self-reported questionnaire a process taking place, by definition, in a social interaction. Some authors (Jolliffe & Farrington, 2006) have already identified that the perspective-taking subscale does not make it possible to evaluate the ability to adopt the other's point of view, for certain specific emotional situations. Moreover, the IRI is a measure of empathy not specific to medical settings. In order to obtain more objective clues to the empathic response, new methodologies have emerged: behavioural and psychophysiological (Neumann & Westbury, 2011). In the context of health care, the means that seems most promising to us is the analysis of the empathic response, in interaction with a patient. This situation of face to face seems judicious because in everyday life, our empathic response adapts and modifies itself permanently, on the basis of indices detected in the other (Tracey, 2004). The self-reported questionnaires are often a-specific and decontextualized, they cannot reflect the ability to adapt one's interpersonal behaviours to a specific situation (Moors & Zech, 2017). Some authors concluded that "a discrepancy exists between self-administered empathy scores and observed empathic behaviours" (Teng *et al.*, 2017). They thus use an observational methodology to measure empathy among medical students: simulation. Although this

one is controversial (Wear & Varley, 2008), some authors (Teherani, Hauer, & O'Sullivan, 2008) consider that "properly designed and conducted" simulation may be an interesting tool to measure empathy. In this line, authors have measured the empathy present in medical students in simulated interviews with standardized patients in the framework of objective structured clinical examinations (OSCE) (Lim, Moriarty, Huthwaite, Gallagher, & Perera, 2016; Teng *et al.*, 2017). A trained faculty staff completed the Measure of Patient-Centered Communication (MPCC) instrument to measure empathic behaviour during OSCE via live video. The students (in the second year of clerkship training) did not show any less observed empathic behaviours than the students of the first year (Teng *et al.*, 2017). Other authors (Jordan *et al.*, 2016) had already identified that there is no or even a negative relationship between empathy measured by a self-reported questionnaire (here "Empathy Index": EI) and pro-social behaviour (e.g., a supportive attitude). Thus, the identification and understanding of the other are not enough to generate an adapted pro-social behaviour. It is not because a student has a high empathy score on a self-reported questionnaire that he will necessarily show altruistic behaviour towards his patient. It would seem that motivation is decisive in the behavioural outcome of the empathic response (Batson, 2009).

Furthermore, a hypothesis that makes it possible to analyse these paradoxical results is the question of the "functionality" of this decline in empathy. Indeed, the empathic response varies in terms of adaptive or "functional" character. This means that empathic reactions can be more or less in line with the person's goals and needs (in this context of health care, this includes both the suffering patient and the empathetic doctor). The two categories of empathic behaviour when facing the distress of others are supporting and avoidance (Grynberg, Heeren, & Luminet, 2012). The consequence of a functional empathic response will be the ability to stay in the presence of the other's emotion (e.g.,

of the patient). This means, for example, to be able to provide support following the announcement of a serious diagnosis and not to leave the patient's room to avoid this difficult emotion (Grynberg *et al.*, 2012). Conversely, when the distress is too intense for the subject (this is called "personal distress" [Batson, 1991]), he will focus on himself. The most spontaneous answer is then avoidance. Going in this direction, research has shown that physicians would tend to set up avoidance behaviors in order to prevent discussions about the emotional and social impact of patients' problems, for lack of time or fear of being unable to manage the outcome of the discussion (Maguire & Pitceathly, 2002). This attitude tends to stress patients more and extend their healing time (Maguire & Pitceathly, 2002). This avoidance response in the presence of significant distress does not mean that the doctor does not care about the well-being of his patient. According to Bayot (Bayot, 2017), the cause of this type of avoidance response could be this one: managing one's own distress requires the mobilization of many cognitive resources, which are then no longer available to pay attention to the other or his needs. The loss of empathy could therefore be functional by reducing the emotional burden on the physician, thus freeing up cognitive resources to take care of the patient. In this line, some authors have identified that neural networks involved in "social cognition" and those involved in "non-social problem solving" are anti-correlated (Fox *et al.*, 2005; Whitfield-Gabrieli *et al.*, 2009). Haque and colleagues therefore consider that diminished empathy may be seen as a "functional cause of dehumanization" in health care (Haque & Waytz, 2012). Indeed, repeated exposure to the pain of others can lead to personal distress or burnout (Cheng *et al.*, 2007; Decety, Yang, & Cheng, 2010). A doctor in fusion with the difficult emotion of his patient will find it difficult to recover or maintain a calm mental state allowing him to solve a clinical problem. To do this, the empathic response requires, in addition to an affective

response (including the physiological responses) and a cognitive response (ability to adopt the point of view of the other) the competence of emotional regulation. This emotional regulation component seems to be the key to an appropriate empathic response (Decety & Jackson, 2004; Decety & Jackson, 2006). The ability to regulate an affective response means the ability to increase, inhibit or modify it adaptively depending on the situation (Mikolajczak, 2009). It requires taking a distance from the experience of the other, allowing to differentiate what belongs to the other from what belongs to me (Decety & Jackson, 2006). When this distinction is absent, we call it "sympathy". The two people then become one in the emotional experience. We can imagine, for example, that the doctor cries with his patient. This explains why programs involving medical students with the ability to introspect (self-awareness) are particularly effective to enhance their empathy. The ability to inhibit a primary emotional response is also necessary for this purpose. Suggesting that mindfulness training—who increases emotional regulation and decreases some impulsive responses (Holzel *et al.*, 2011; Vujanovic, Bonn-Miller, Bernstein, McKee, & Zvolensky, 2010)—can be quite relevant for medical students. Developing educational programs aimed at maintaining or increasing the empathy of (future) doctors is possible. Hojat (Hojat, 2009) identified 10 approaches to enhance empathy in medical education: "improving interpersonal skills, audio or video-taping of encounters with patients, shadowing a patient, hospitalization experiences, studying literature and the arts, improving narrative skills (for more details, see [Charon, 2001]), theatrical performances, Balint group method, exposure to role models and role playing". Recently, authors proposed the development of self-empathy (new in the context of medicine education) to enhance the well-being of medical students and practitioners, so that they take better care of their patients (Rajput & Rosenberger, 2017).

Thus, it appears to us that a "functional" empathy for a physician would be a "flexible" empathy. An empathetic doctor should therefore be able to regulate his emotion to release cognitive resources when needed to better cure his patient. This is why, in addition to the 10 approaches cited above, we propose an additional one: the development of the emotional skills of (future) doctors. Indeed, according to Hojat *et al.* (2009), modern medical education promotes physician's emotional detachment, affective distance. Interventions designed to increase the emotional skills of (future) physicians therefore appear to be a promising tool for maintaining their empathy. The fact that the students' score on the "personal distress" subscale (which characterizes a difficulty in managing their emotions) declines is actually a rather good thing. Students may adapt their behavior to fit to the reality of the field (Nunes *et al.*, 2011). We hope that emotional skills training will also help to develop the well-being of these future physicians. A study showed that this well-being was positively correlated with the level of empathy of medical students, unlike stress and burnout (Thomas, Dyrbye, Huntington, Lawson, Novotny, Jeff, *et al.*, 2007).

To conclude, our results are unlikely to predict real empathic behaviors of those medical students towards patients because the decline observed via self-reported empathy scores does not always translate into less empathic behaviour (Teng *et al.*, 2017). To get measures with better predictive validity, in addition to a methodology measuring empathy in a more realistic situation (participant in interaction with another person), it would be interesting to take into account the emotional skills and motivations of the participant (in order to be aware of possible confounding variables). In any case, we consider that a "good doctor" must be able to modulate one's empathy according to different professional situations. By functional empathy, we mean the ability to take the patient's perspective when it is beneficial (in consultation for example) and not when it

consumes the physician's cognitive, which could be harmful (during surgery for example) for the patient. It appears that most self-reported questionnaires are not able to differentiate this potentially functional decline from some dimensions of empathy. To us, the fact that the scores for the personal distress subscale (IRI-PD) decrease after first internship, may indicate a positive change for these medical students: towards better emotional regulation and more functional affective empathy.

Acknowledgments

We thank the University of Namur's Internships Commission for allowing us to collect data issued from their internships in general medicine they have initially launched in 2015.

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TABLES

1) Mean and standard deviation of women and men of subscales of the IRI at time 1.

IRI subscales	**Gender**	**Mean (Std. Deviation)**	**Statistical Test (Independent-Samples T Test)**
IRI-**F**	Women (N=142)	26.28 (4.9)	t= -2.18*
	Men (N=78)	24.71 (5.6)	
IRI-**EC**	Women (N=142)	29.08 (3.4)	t= -5.47***
	Men (N=78)	26.22 (4.2)	
IRI-**PD**	Women (N=142)	19.77 (4.4)	t= -3.67***
	Men (N=78)	17.50 (4.3)	
IRI-**PT**	Women (N=142)	26.56 (4.2)	t= 0.05
	Men (N=78)	26.59 (4.3)	

Note: **F**= Fantasy; **EC**= Empathic concern; **PD**= Personal Distress; **PT**= Perspective Taking

*p<0.05; **p<0.01; ***p<0.001.

2) Mean and standard deviation of students of subscales of the IRI at times 1 and 2.

IRI subscales	**Mean (SD)** **Time 1 (before the internship)**	**Mean (SD)** **Time 2 (after the internship)**	**Statistical Test (Paired Samples *t* Tests)**
IRI-**F** (N=220)	25.72 (5.2)	25.03 (5.8)	t=2.77**
IRI-**EC** (N=220)	28.06 (3.9)	27.40 (4.5)	t=2.91**
IRI-**PD** (N=220)	18.97 (4.5)	18.42 (4.5)	t=2.27*
IRI-**PT** (N=220)	26.57 (4.2)	26.36 (4.4)	t=0.96

Note: **F**=Fantasy; **EC**=Empathic concern; **PD**=Personal Distress; **PT**=Perspective Taking

*p<0.05; **p<0.01; ***p<0.001.